

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Luo, et al.  
Serial No.: 10/753,089  
Filing Date: January 7, 2004  
Group Art Unit: 1755  
Confirmation No.: 5413  
Examiner: Marcantoni, Paul D.  
For: *Fiber Cement Composite Materials Using Bleached Cellulose Fibers*

**DECLARATION OF CAIDIAN LUO PURSUANT TO 37 C.F.R. § 1.132**

I, Caidian Luo, declare that:

1. I am a technical manager presently employed by James Hardie Research U.S.A. in Fontana, California. I have personal knowledge of the facts set forth below.
2. I am a co-inventor of U.S. Patent Application No. 10/753,089 entitled FIBER CEMENT COMPOSITE MATERIALS USING BLEACHED CELLULOSE FIBERS (hereinafter referred to as “the ‘089 application”) filed January 7, 2004.
3. For the purposes of making this Declaration, I have reviewed the ‘089 application and the pending claims, the Office Action mailed August 30, 2007 (“the Office Action”), and U.S. Patent Nos. 6,606,248 and 6,346,146 (collectively referred to as the “Duselis patents”).
4. In reviewing the Office Action, I have noted that the pending claims 1 and 4-11 are rejected under 35 U.S.C. § 102(a) and (e) based on either Duselis patent. I understand that a rejection under this statute is based on a lack of novelty. I have also noted that these same claims are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Duselis patent. I understand that a rejection under this statute means that the invention as claimed is obvious.
5. The ‘089 application is directed towards a composition that includes a cementitious matrix and a blend of bleached and unbleached cellulose fibers, and more specifically, in one embodiment,

the bleached fibers make up between about 5% and about 25% weight percent of the total cellulose fibers.

6. At the time the Duselis patents were filed, it was believed that the fiber-cement mechanical properties like modulus of rupture (MOR), strain and toughness were linearly proportional to the percentage of bleached pulp in the blend.

7. Up to the time of our discovery, it was believed that both high MOR and strain could not be achieved at the same time with bleached cellulose fibers in the range of 5% to 25% weight percent of the total cellulose fibers.

8. However, we surprisingly discovered that the mechanical properties of the products are not linearly proportional to the percentage of the bleached pulp in the blend at 25% or less as shown in FIG 2-4 in the '089 application. In fact, we found that we could produce fiber cement products with mechanical properties such as MOR, strain, and toughness, that are comparable to products using unbleached, premium grade cellulose fibers by using a blend of 5% to 25% bleached pulp with unbleached pulp.

9. The Duselis patents disclose the use of bleached fibers for fiber-cement formulations containing 10% or more calcium silicate hydrate (CSH). Until our discovery, it was believed that the use of bleached fibers alone in products with less than 10% CSH would perform poorly.

10. Neither Duselis patent provides any information on the percentage of bleached pulp used in a cellulose fiber blend. For example, EXAMPLE 6 of Duselis' U.S. Patent No. 6,506,248, shows either the use of 100% unbleached Radiata pine fibers (Formulation 1) or 100% bleached Radiata pine fibers (Formulation 2). No example includes a blend of bleached and unbleached fibers.

11. I do not believe that either Duselis patent is directed towards a composition that includes a cementitious matrix, and a blend of bleached and unbleached cellulose fibers where the bleached fibers make up between 5% and 25% weight percent of the total cellulose fibers. In reviewing the Office Action, the examiner appears to rely on lines 15 through 21 of column 5 of the Duselis patents when he states "Duselis '248 B1 teaches cellulose fibers may be bleached, unbleached, or mixtures thereof." For at least the reasons mentioned above, I do not believe that one of ordinary

skill reading that sentence alone or with reference to the Examples would expect a fiber cement product containing a cellulose fiber blend with a concentration of bleached fibers between 5% and 25% to have both a MOR and strain comparable to composition having only premium fibers.

12. In summary, I believe that the results of the '089 application and the pending claims would have been unexpected to one of ordinary skill in the art who was familiar with the Duselis patents at the time the '089 application was filed.

13. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patents issuing therefrom.

Dated: Oct. 31, 2007



Caidian Luo